## REMARKS/ARGUMENTS

### Petition for Extension of Time Under 37 CFR 1.136(a)

It is hereby requested that the term to respond to the Examiner's Action of December 6, 2006 be extended three months, from March 6, 2007 to June 6, 2007.

Authorization to charge a Credit Card is given to cover the extension fee. The Commissioner is hereby authorized to charge any additional fees associated with this communication to Deposit Account No. 19-5425.

Claims 34-37 are pending in the application. Claim 34 is an independent claim.

### Claim Rejections, 35 U.S.C. §§ 102 and 103

On page 2 of the Office Action, the Examiner rejected claims 34-37 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,091,780 to Sointula, and on page 4 of the Office Action, the Examiner has rejected claim 37 under 35 U.S.C. §103(a) as being unpatentable over Sointula. Also on page 4 of the Office Action, the Examiner has rejected claims 34-37 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,444,697 to Leung et al. in view of U.S. Patent No. 6,064,871 to Leung.

### The Present Invention

As previously discussed, applicants claimed invention enables a low cost digital radio receiver to be constructed in which a general purpose main processor of a PC (or other kind of personal computing device) is used to perform the computationally intensive demodulation

steps. A 'front-end' for the PC can then be constructed which handles incoming RF signals but performs no demodulation at all. See for example:

> "In a broad sense, the invention is designed to exploit the extremely fast main processor integrated circuits (ICs) and large memory capacity available within PCDs, particularly IBM-PC compatible machines. The processor chips fitted to such systems are often capable of outperforming dedicated digital signal processing (DSP) ICs and have plenty of spare computing capacity ..." Page 10, 3rd para.

This approach is potentially far cheaper than prior art approaches, in which a dedicated (and relatively costly) DSP chip is deployed to perform the computationally intensive demodulation steps.

In a broad sense, the invention is designed to exploit the extremely fast main processor integrated circuits (ICs) and large memory capacity available within PCDs, particularly IBM-PC compatible machines. The processor chips fitted to such systems are often capable of outperforming dedicated digital signal processing (DSP) ICs, and have plenty of spare computing capacity (and other resources, such as memory) available when the user is performing the tasks for which PCDs are commonly employed, such as editing a spreadsheet, writing a letter, browsing files, and suchlike. The cost of the said main processor IC is high, but the user has already paid for the device when he or she bought the PCD (unlike the case of the DSP, which must be included in the price of a DSP-equipped radio modem). In any case, the extremely large and competitive market for PCDs means that the cost per normalised computational operation (NCO) is lower for the general purpose main processor IC than the dedicated DSP. Furthermore, the ubiquity of such ICs ensures the existence of a large number of software engineers who are familiar with coding for such

architectures, and the presence of advanced development tools to facilitate their efforts. This must be compared with the specialised world of DSP programming, with all its attendant expenses.

The present invention thus exploits the availability of 'spare' computing capacity on the very device to which the user wishes to connect a radio receiver, transmitter or transceiver (in order to gain access to information services and other RF broadcasts, whether analogue or digital). It is thus beneficial to make use of this capacity, rather than to replicate it by embedding an expensive DSP into the transceiver hardware (or to use a restricted analogue component system).

**The Cited Prior Art Does Not Anticipate the Claimed Invention**

The MPEP and case law provide the following definition of anticipation for the purposes of 35 U.S.C. §102:

> "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." MPEP §2131 citing *Verdegaal Bros. v. Union Oil Company of California*, 814 F.2d 628, 631, 2 U.S.P.Q. 2d 1051, 1053 (Fed. Cir. 1987).

As has been previously argued, the present invention allows the use of the general purpose CPU in a PC to do all of the computational work in processing digitized radio signals. In prior art systems, this processing of the digitized radio signals is performed in a DSP. As mentioned throughout the specification, use of a DSP adds significant expense and, while it functions adequately, adds additional cost to the consumer. The present invention, on the other hand, avoids this expense issue

by performing the computational work in processing the digitized radio signals using a general purpose main processor (i.e., the general purpose CPU in a PC) to do this work.

Each of the claims now specifically recite the use of the general purpose processor to perform these functions.

The art cited by the Examiner still requires the use of a DSP. See, for example, Sointula, which the Examiner acknowledges uses a DSP for this function. Since the present claimed invention performs these functions using a general purpose main processor, and since Sointula requires the use of a DSP, the present invention patentably defines over Sointula.

The additional references cited by the Examiner do not teach or suggest the use of a general purpose processor to perform the processing on the digitized modulated intermediate frequency signals, as is claimed herein, and thus the addition of these references do not render the present claimed invention obvious.

In short, none of the art cited by the Examiner, either taken alone or in combination, teaches or suggests the present claimed invention, in which a general purpose main processor is utilized to perform all aspects of handling a digitized modulated intermediate-frequency signal derived from a received modulated radio-frequency signal.

In view of the above, the Examiner is respectfully requested to reconsider and withdraw the rejection of claims 34-37. Reconsideration of the claims and an early notice of allowance is earnestly solicited.

**Conclusion**

In view of the foregoing amendments and remarks, applicant respectfully requests entry of the amendments, favorable reconsideration of the application, withdrawal of all rejections and that claims 34-37 be allowed at an early date and the patent allowed to issue.

Respectfully submitted,

Peter Charles Florence

By /Mark D. Simpson/
Mark D. Simpson, Reg. No. 32,942

Synnestvedt Lechner and Woodbridge
P. O. Box 592
Princeton, NJ 08542-0592
Tel. (609) 924-3773
Fax (609) 924-1811

W:\SLW Clients\=Clients - 5000\=Clients - 5000 thru 5099\5035 - Origin\205US - P29,733 USA\Non-final OA of 12062006\Reply to OA of 12062006.doc